NASA Langley Research Center

Hampton, Virginia
Superfund Program Site Fact Sheet

Type of Facility: NASA Research Center, Federal Facility

Funding NASA

Lead Agency NASA

Site Description and History

NASA Langley Research Center (LaRC) is next to Langley Air Force Base in southeastern Virginia in the heavily populated Hampton Roads area. It is on 810 acres of United States Government-owned land. There are approximately 270 structures on site divided between the "west" and "east" areas. The majority (90 percent) of the facilities are in the west area. The west area is bounded by Brick Kiln Creek to the north, Route 172 to the west, and Langley Air Force Base to the south and east.

The primary function of LaRC is research and development of advanced technologies for aircraft and spacecraft. Specific studies center on instrumentation, materials fatigue acoustics, aerodynamics, and guidance control.

LaRC was the first national research laboratory dedicated to aviation. Groundbreaking took place on June 17, 1917, under the authority of the National Advisory Committee for Aeronautics (NACA) created by Congress in 1915. In 1920, LaRC was dedicated and the world's first wind tunnel was completed at the facility. The goal of LaRC was to advance the understanding of aerodynamics. During World War II, LaRC began studying space travel in response to German rocket testing. In the early 1960s, the Mercury astronauts were trained at LaRC. This activity ended in 1962 when the Manned Space Flight Center was opened in Houston, Texas. Since the 1970s, LaRC has focused on testing Space Shuttle systems and unmanned Viking probes. The following sites describe the undergoing environmental restoration in detail:

Stratton Road Substation, Building 1233: Stratton Road Substation occupies approximately 2.5 acres and is secured by a perimeter fence. The substation is on the northeast side of the site between Taylor Road and Warner Road, and consists of six major structures: two 119 kV switch gears, two 22 kV switch gears, a control house, and a pump house. Polychlorinated Biphenyls (PCBs) were detected in the substation soil in 1984. The affected area is next to the pump house. Between 1984 and 1987, the focus of site investigations was primarily on soil contamination. Subsequently, three removal

actions were completed that met the requirements of the Toxic Substances Control Act (40 CFR 761). In June 1987, four monitoring wells were installed at the perimeter of the removal action excavation area for groundwater evaluation. Analytical results from these wells show low levels of PCBs in the groundwater in the area. A remedial action consisting of excavation and off-site disposal of contaminated soil and the implementation of institutional controls has recently been completed. A Final Remedial Action report has been approved. A Groundwater Evaluation draft summary report has been submitted.

AREA E Warehouse: The Area E Warehouse site occupies approximately 4.5 acres of land. Access to the site is prohibited for the public and limited for LaRC employees. The Area E Warehouse site is currently used to store goods and materials for use in day-to-day operations. During the 1960s, the site was used for temporary storage of drums of waste materials and transformers awaiting transportation for off-site disposal. Small leaks and spills occurred during that time, resulting in minor soil contamination in the Area E Warehouse area. The area of soil contamination totals about 1.3 acres. Concentrations of metals in the soil, including lead, mercury, and manganese, are very low. PCBs in the surface and subsurface soil are low, less than 5 ppm. A Record of Decision was signed in September of 1998 and it presented institutional controls as the selected remedial action for this site.

Pyrotechnics Area (Chemical Waste Pit): The Pyrotechnics Area is near Building 1161, northwest of the intersection of Hunsaker Road and Bush Road. Solid explosives, including lead azide and various plastics, were used for on-ground, open air tests conducted at the Pyrotechnics Area. This testing stopped some time in the 1960s. Interviews conducted with employees show the Pyrotechnics Area contains a waste disposal pit within its bounds. It is possible that chemical waste from LaRC was deposited in this pit during 1968. These chemicals, generated during a "closet clean out" of chemicals and chemical waste, were buried in small plastic, metal, and glass containers. Thirty feet in diameter by twenty feet in depth is the approximate dimension of the waste disposal pit. The hole was estimated to be 2/3 full at the time of backfilling.

The alleged disposal pit and other parts of the clearing have been covered with earth and fill material. The area is overgrown with thick brush and small trees. Tidal marshes border the site to the north and small wooded areas are to the south and east. A locked gate and fence to the south and a drainage channel to the east limit access to the site. Extensive investigations have been conducted between 1992 and 1995 to find the chemical waste pit. These investigations have included trenching, soil boring and sampling, and groundwater well installation. However, they have produced no evidence of the disposal pit. A No Further Remedial Action Planned (NFRAP) Record of Decision (ROD) is anticipated for this site.

Tabbs Creek: Tabbs Creek is a meandering creek flowing east-northeast into the northwest branch of the Back River and has a wide marsh and thick brush and trees along its perimeter. PCBs and polychlorinated triphenyls (PCTs) are the contaminants of concern. They were inadvertently discharged into the storm sewers and eventually

deposited in Tabbs Creek via Outfall 009. A Remedial Investigation (RI) was conducted in 1991 and 1992. The investigation consisted of sampling and analysis of surface water, sediment, and biota samples for both organic and inorganic contamination. It was determined contaminants were present in the sediment and biota specimens found in the creek and, in low concentrations, in surface water samples. The distribution of PCB/PCT sediment contamination is consistent with the contamination source at Tabbs Creek being storm sewer outfall 009 at the head of the creek. Up to 760 ppm of PCBs and PCTs were detected in sediment samples from the site, with PCTs dominating in concentrations and sampling locations. A Record of Decision was signed in September of 1998 and presented as the selected remedial action for the site. The RA, which consisted of dredging and off site removal of contaminated sediment, was completed in May of 2000. The final year 1 report of the Post Remedial Biomonitoring Activity has been submitted for review.

Construction Debris Landfill (CDL): The CDL is on 9.6 acres of land west of Building 1157 and north of the Landing Loads Facility track. The site is bordered by Brick Kiln Creek to the north and two Virginia Pollution Elimination System (VPDES) outfalls (05 along the western boundary and 07 along the eastern boundary). The CDL is accessible by means of an access road. Entrance to the fenced site is through a gate that only partially restricts access.

Currently, the area is vegetating with mature and sub-mature trees, a dense under level ground cover, and a variety of shrubs. Historically, the site has been used for disposal of construction-related debris from the facility and as a staging area for approximately 450 55-gallon drums containing various chemicals and/or waste materials generated at LaRC. To date, analytical results of investigations show the presence of organic and inorganic contaminants in groundwater, surface water, sediment, and soil samples. A feasibility study has been submitted for review.

Current Site Status

LaRC was listed on the National Priorities List in May 1994. In April 1994, the Environmental Protection Agency (EPA), the Virginia Department of Environmental Quality (VDEQ), and NASA entered a Federal Facilities Agreement to cover the management of future activities at the center.

Community Relations

VDEQ staff attends public availability sessions and conducts site visits. In March 1994, LaRC completed the Community Relations Plan.

VDEQ Representative	Information Repository
Paul Herman, P.E. Remediation Project Manager Virginia Department of Environmental Quality	Main Branch Hampton Public Library 4207 Victoria Boulevard

P. O. Box 10009 Richmond, VA 23240-0009 (804) 698-4464, Fax (804) 698-4234 E-mail: peherman@deq.state.va.us	Hampton, Virginia 23669